

# ***Headquarters U.S. Air Force***

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*Integrity - Service - Excellence*

## **AF Measurement and Verification**



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**Energy 2003**

**20 Aug 03**

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**AF Facilities Energy Program  
Manager**



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# ***Back to our Roots***

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## **■ Our Problems**

- Replace aging infrastructure**
- Reliability – able to meet the needs of the mission**
- Energy Savings**

## **■ Our Need**

- Long Term Solution**
  - Solve the problem**
  - Keep it Solved**



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# ***Why ESPC?***

- **Direct Appropriation only replaces equipment**
  - **Doesn't ensure reliability**
  - **Doesn't ensure efficiency**
- **Lack manpower, technical skills and resources**
- **ESPC provides for the LONG TERM Solution**
  - **SUSTAINED PERFORMANCE**
  - **SUSTAINED SAVINGS**



- **How do we get SUSTAINED performance and savings**
- **Performance based contracting**
  - **Energy Savings PERFORMANCE Contracting**
  - **Performance is:**
    - **GUARANTEED**



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# ***ESPC Recap***

- **Need Long Term Solution**
  - **Sustained Performance**
  - **Sustained Savings**
- **ESPC**
  - **Guaranteed Performance**
  - **Guaranteed Savings**
- **How do we ensure the promise of LONG TERM performance and savings is delivered?**
  - **M&V**
    - **Today**
    - **Tomorrow**
    - **For the next 20+years**



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# ***Effective M&V Provides for:***

- **Verification of Performance**
- **Verification of Savings**
- **Verification of O&M**



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# ***Essential Elements of M&V***

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- **Establishment of Baseline (Pre ECP)**
- **Determining Performance Requirements**
- **Determining Guaranteed Savings**
- **Acceptance Verification Tests**
  - **Performance Verification Tests**
  - **Savings Verification Methodology**
- **Annual Reconciliation**
  - **Performance Verification**
  - **Savings Verification/Determination/Reconciliation**
  - **O&M Verification**
- **Stand Alone Document**



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# ***AF Approach to M&V***

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- **Common Sense Approach**
  - **Identify modes of failure**
  - **Focus on highest risks**
  - **Isolate/minimize variables**
  - **Measure only the essentials**
  - **Boil down the results**





- **Develop Templates**
  - **By ECP/ECM**
  - **Provides Guidance and Direction**
    - **Define expectations**
    - **Starting point**
  - **The 80% solution**
    - **Applied by experts (ESCO and AF working together)**
  - **Living Document**



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# ***M&V Advisory Subcommittee***

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- **Bi-annual meetings**
- **Open forum with presentations, facilitated discussions, and working group break-out sessions**
- **Participation is open**
- **Recommendations made to DoD/DOE Steering committee**
  - **Recommendations are voluntarily applied**



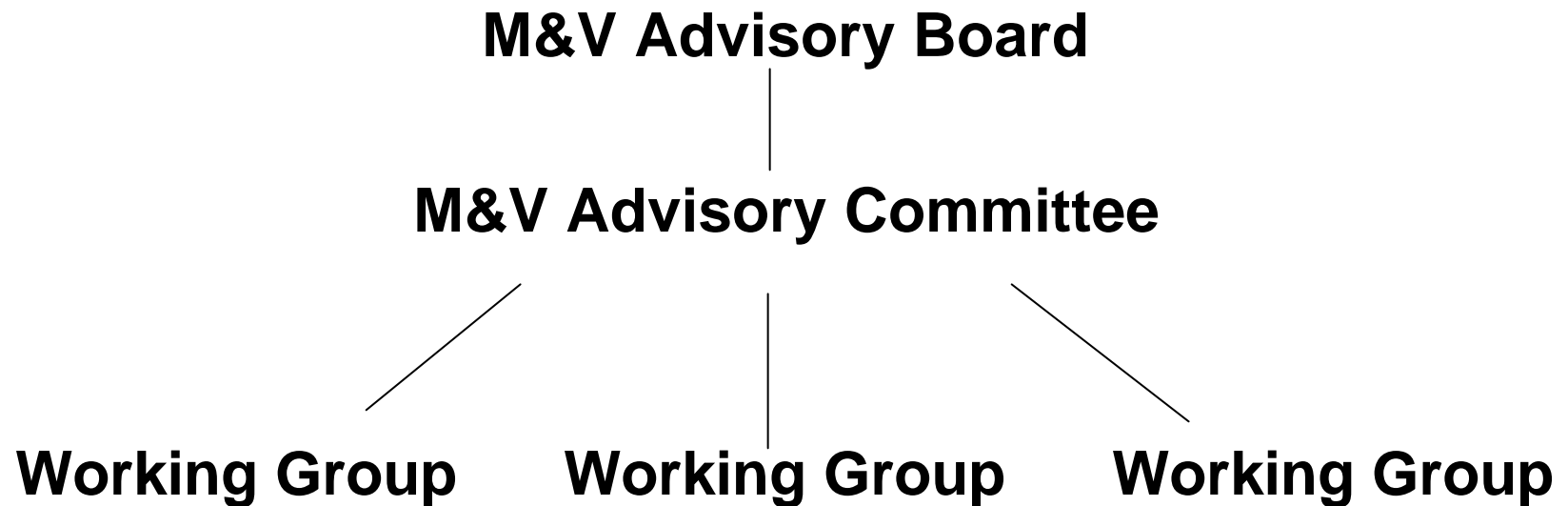
- **To Serve the DOD/DoE ESPC Steering Committee by:**
  - **Providing M&V guidance and recommendations**
  - **Helping preserve federal ESPC program integrity through effective M&V**
- **Foster partnership between government and industry in advancing M&V practices**
- **Foster M&V uniformity across DOD/DoE and other federal agencies**



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# Organization

## ■ DOD/DoE ESPC Steering Committee





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# ***Completed Working Groups & Deliverables***

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- **M&V Planning Tool**
  - **Overview of process for selecting M&V approach**
- **Training**
  - **½ Day M&V training session for DOE ESPC DO workshop**
- **Annual Reporting**
  - **Outline format for Annual Report**



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# ***Active Working Groups & Goals***

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- **Commissioning**
  - **Develop commissioning procedures for ESPC implemented ECMs**
- **Retro-Commissioning**
  - **Develop re-commissioning of facilities as an ECM in ESPC projects**



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# ***Proposed Working Groups & Goals***

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- **Project Continuity**
  - **Documentation and life cycle project management (up to 25 year contract life)**
- **M&V Plan Template**
  - **Develop uniform template for M&V plans**
- **ECM Specific plans**
  - **Example M&V plans for common ECMs**



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# ***M&V Advisory Subcommittee***

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- **Next M&V Summit Nov timeframe**
- **All invited to attend**